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NEW HELICID SNAIL FROM ZACATECAS, MEXICO[1]

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This is the second species of *Humboldtiana* to be described from the state of Zacatecas The other species known from the state is *H. chrysogona* Pilsbry, which is common in the mountains above Concepcion del Oro. The new species is unusual within the genus because it lives in a dry, sparsely vegetated desert. In allusion to its habitat it is named:

HUMBOLDTIANA TESCOLA new species. Page 27, figs. 1-4.

Diagnosis. A member of the *texana* group in which the ground color of the shell is dark tan with numerous close white streaks. Bands are absent or weakly developed. Shape conico- globose. Shell thin. Suture deeply impressed. Embryonic whorls large, protruding. Periostracum absent. Sculpture consisting of strong incremental striations and wrinkles. Granulation sparse and rudimentary, confined to upper surface of first two neanic whorls. Diagnostic features of the anatomy are listed below.

H. tescola differs from all other species of the *texana* group by its predominately white-streaked color pattern that lacks distinct dark spiral bands.

Description. Shell (page 27, figs. 1-4) conico-globose, 0.83-0.97 times as high as wide. Thin. Obliquely umbilicate. 4.0-4.5 whorls. Suture deeply impressed. Whorls regularly increasing in size; last quarter whorl descending deeply to aperture. 1.2-1.4 protruding embryonic whorls. First whorl smooth, 2.4-2.8 mm. in diameter perpendicular to initial suture; following 0.2-0.4 embryonic whorls with fine radial striations. Neanic whorls with strong incremental striations and wrinkles. First two neanic whorls with sparse low granules that are usually located within axial striations and between wrinkles. Granules confined to upper surface of early whorls and absent or very sparse on body whorl. Periostracum absent. Aperture

[1] Field work in Mexico during 1966 was supported by the National Institutes of Health Research Grant GM. 12300-2.

oblique in lateral profile, lying at about 45-52° to axis of shell, 0.94-1.19 times as high as wide. Peristome sharp, simple. Interior of aperture frequently with a low callus behind peristome. Columella oblique, partially reflected over umbilicus. Parietal callus thin, transparent, slightly advanced.

Ground color dark tan marked with numerous white streaks that dominate color pattern. Bands generally absent. Two bands may be vaguely evident in some specimens, one just above and the other just below the periphery. Embryonic whorls grayish-tan. Interior of aperture rusty-tan. Columella grayish-white.

Measurements of type: height, 30.8 mm.; major diameter, 34.2 mm.; oblique aperture height, 24.0 mm.; aperture width, 21.5 mm.; 4.2 whorls.

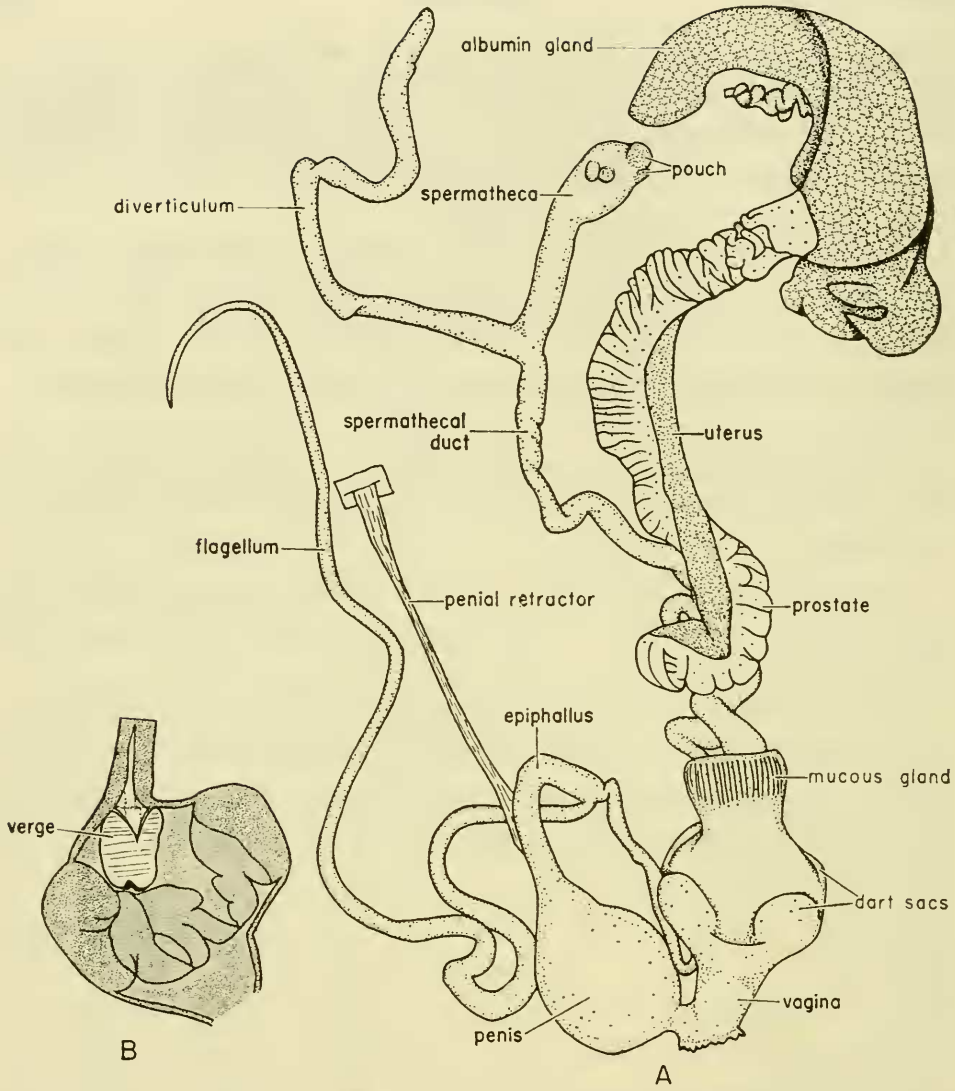
Measurements of paratypes: height, 28.2-33.1 mm.; major diameter, 32.0-38.3 mm.; aperture height, 21.1-25.0 mm.; aperture width, 20.4-25.6 mm.

Anatomy. Most aspects of the anatomy are typical for the genus as described by Pilsbry (1939: 395-396) and Burch and Thompson (1957). The reproductive system is illustrated in page 24, figs. A,B. Measurements of various reproductive structures for 3 specimens are:

flagellum	79 mm.	68 mm.	60 mm.
epiphallus	7	11	9
penis	7	9	–
verge	2.9	2.0	2.4
vas deferens	26	32	25
penial retractor muscle	20	–	–
spermatheca and duct	46	54	39
spermatheca and duct above diverticulum	14	12	10
duct below diverticulum	32	42	29
diverticulum	34	36	29

(Comparable measurements for other species in which the anatomy is known are given in Burch and Thompson, 1957).

Diagnostic features of the anatomy are: Mucous glands on vagina separated from dart sacs (as in *H. texana* Pilsbry). Verge with a vestigial chamber at base of epiphallus. Vagina with 4 equally developed and functional dart sacs. Spermatheca with 4-6 small globular pouches on surface. Diverticulum considerably longer than distal segment of spermathecal duct, and about as long as



Figs. A, B. *Humboldtiana tescola* Thompson. A. Reproductive system. B. Interior of penis.

lower segment. Flagellum long, 3.5-5.6 times length of penis and epiphallus. Epiphallus short, 1.0-1.2 times length of penis. Nape and snout very darkly pigmented, almost black. Sides of body dark gray. Lower sides of foot and tail light gray.

Type locality. Zacatecas, 15.7 miles southwest of San Tiburcio, 7600 feet alt. Type: University of Florida Collections (UF.) 19752; collected August 6, 1966 by Fred G. Thompson. Paratypes: UF. 19753 (20), Museo Nacional de Mexico (3); same data as the type.

The type locality lies along the highway from Zacatecas City to Saltillo, and is in a low, dry range of limestone hills that rise about 400-600 feet above the surrounding desert. Specimens were collect-

ed in limestone crevices and under dead Joshua tree trunks (*Yucca* sp.) along the southeast side of the range on a dry rocky hillside. The vegetation in the area consisted of sparse, low desert scrubs and Cholla cactus (*Opuntia,* s. g. *Cylindropuntia* sp.), and occasional scattered Joshua trees on the hill tops.

Relationships. This species belongs to the *texana* group (Burch and Thompson, 1957: 2) because of the separation of the mucous glands from the dart sacs on the vagina. *H. tescola* is distinguished from other species in which the anatomy is known by the diagnostic features outlined above. It is unique anatomically because of the length of the diverticulum on the spermathecal duct, and by the presence of small globular pouches on the spermatheca. It is also unusual in that it has a proportionally long flagellum, and a relatively short epiphallus. It resembles *H. fortis* Pilsbry in these latter two characters, but that species belongs in another group because of the close association of the mucous glands and dart sacs on the vagina, and in having only two well developed, functional dart sacs.

In shell features, *H. tescola* is similar to *H. hogeana* (Martens) in the weak development of its granular sculpture. It differs from that species by its coarser axial striations and wrinkles, its bandless color pattern, its deeper suture, and its more protruding embryonic whorls. It is also similar to *H. fortis* in its color pattern, but that species completely lacks granular sculpture, is more globose, and is thicker shelled.

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TWO NEW SPECIES OF PACHYCHILUS FROM NORTHEASTERN MEXICO[1]

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Two new species of *Pachychilus* collected during recent years are remarkable for their restricted distributions. One is confined

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